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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

EXPLANATION OF SIGNIFICANT DIFFERENCES #2
BALLY GROUND WATER CONTAMINATION SUPERFUND SITE
BALLY, BERKS COUNTY, PA

I. INTRODUCTION

Site Name: Bally Ground Water Contamination Superfund Site
Site Location: Borough of Bally, Berks County, Pennsylvania
Lead Agency: U.S. Environmental Protection Agency, Region III (EPA or the Agency)
Support Agency: Pennsylvania Department of Environmental Protection (PADEP)

Statement of Purpose

A Record of Decision ("ROD") for the Bally Ground Water Contamination Superfund Site ("Site") was issued on June 30, 1989. The Selected Remedy for the Site is documented in the ROD, Explanation of Significant Differences No. 1 (issued January 18, 1990), and the Record of Decision Amendment (issued August 1, 2007). This Explanation of Significant Differences ("ESD") No. 2 to the ROD, is issued by EPA in accordance with Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act, as amended, ("CERCLA"), 42 U.S.C. §9617(c) and the National Oil and Hazardous Substances Pollution Contingency Plan ("NCP"), Section 300.435 (c) (2)(i). This ESD significantly changes, but does not fundamentally alter, the remedy selected in the ROD with respect to scope, performance, or cost. This ESD changes the discharge location for Municipal Well Number Three (MW#3), a Site ground water extraction well. This document will be incorporated into the Administrative Record maintained for this Site, as required by NCP Section 300.825 (a) (2).

In summary, this ESD changes the discharge location of Municipal Well Number Three (MW#3) from an unnamed tributary of the West Branch of the Perkiomen Creek, to the West Branch of the Perkiomen Creek itself.

This ESD is based on the Administrative Record for the Site. This ESD and the information upon which it is based are included in the Administrative Record, as required by NCP § 300.825 (a) (2). The Administrative Record is available for public review at the locations listed below:

USEPA, Region III – 6th Floor Docket Room
1650 Arch Street
Philadelphia, PA 19103
Please call Paul Van Reed (215) 814-3157 to schedule an appointment.

The Administrative Record is also available on-line at:

<http://www.epa.gov/arweb>

Search "PA"; search "Bally Ground Water Contamination"; and search "Remedial – 01"

II. SUMMARY OF THE SITE HISTORY, SITE CONDITIONS, AND SELECTED REMEDY

The Site is located in the Borough of Bally, Berks County, Pennsylvania. The Site consists of a former manufacturing facility, previously identified as the Bally Engineered Structures (BES) facility, located to the south of North Fourth Street, and a plume of ground water contamination that originated from the manufacturing facility. Contaminants in ground water at the Site consist of chlorinated volatile organic compounds (VOCs), including trichloroethylene (TCE), 1,1,1-trichloroethane (1,1,1-TCA), and 1,1-dichloroethene (1,1-DCE). The hazardous substance 1,4-dioxane was also identified in the ground water contamination plume in 2003 (discussed further below).

The former BES facility, including three main buildings, several small outbuildings, and parking areas, continues to be used by various tenants for light industrial, commercial, and shipping and receiving activities.

Land use in the vicinity of the Site is primarily residential, with commercial and industrial properties present, as well as parks, recreation fields and local government facilities. The Borough of Bally covers 330 acres and has a population of approximately 1,062 people.

The Site is underlain by a single, thick, unconfined (or locally semi-confined) aquifer that occurs within the limestone bedrock and overlying soils. Transmission of ground water is principally controlled by secondary porosity caused by fractures, joints, and solutioning activity. The direction of ground water flow in the bedrock aquifer is generally to the east.

Site History

The former BES Facility (Facility) is the source of ground water contamination at the Site. The Facility operated as a manufacturer of various insulated cases and other products from the 1930s to approximately 1995. Potential sources of VOC contamination at the facility included two former storage tank systems, and former lagoon areas. No active source of contamination was identified at the Facility during the performance of the Remedial Investigation (1986, 1989), and it was concluded in the ROD that the ground water contamination is the result of historical releases at the Facility.

The ground water contamination plume consists of ground water exhibiting Site-related contaminant concentrations (including TCE, 1,1,1-TCA, and 1,1-DCE) in excess of the ground water performance standards listed in the ROD. These performance standards were based on the

levels set forth in a PADEP Municipal Water Supply Permit and Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs), and are included as follows:

GROUND WATER PERFORMANCE STANDARDS	
Contaminant	Performance Standard (parts per billion)
trichloroethylene	5 (MCL)
1,1,1-trichloroethane	200 (MCL)
tetrachloroethylene	5 (MCL)
1,1-dichloroethene	7 (MCL)
1,1-dichloroethane	Not specified
methylene chloride	5 (MCL)
1,2-dichloroethane	Not specified

The most contaminated portion of the ground water contamination plume lies between the Facility and MW#3. The remainder of the plume extends to the southeast, generally following topography and a stream valley formed by unnamed tributaries of the West Branch of the Perkiomen Creek (West Branch). See Figure 2.

Between 1982 and 1989, Site-related contaminants were identified in the Borough of Bally's two municipal wells which supply drinking water to approximately 1,000 users. These wells are identified as Municipal Well Number One (MW#1), and MW#3.

On June 30, 1989, EPA issued the ROD which documented the selected remedy for the Site. The remedy was comprised of the following components:

1. Properly closing certain private wells, and restricting well use/construction within the Borough of Bally.
2. Performing ground water and surface water monitoring for Site-related contaminants.
3. Pumping MW#3 and treating the water for Site-related contaminants. Treated water from MW#3 would be discharged to an unnamed tributary of the West Branch or supplied to the Bally public water system for potable use.
4. Performing necessary studies to determine if additional ground water extraction wells and treatment systems were necessary.

The remedy selected in the ROD incorporated the use of MW#3 as the extraction well for the cleanup of the ground water contamination plume, and also continued its use as the public water source for Bally. The Potentially Responsible Party (PRP) for the Site has been implementing the remedy selected in the ROD, in accordance with a Consent Decree (Civil Action 91CV3043, entered with the Court July 18, 1991). Between 1987 and 1989 (prior to the issuance of the ROD) the PRP arranged for a two stage air-stripper water treatment system (air-stripper) to be

constructed at MW#3. Since issuance of the ROD on June 30, 1989, MW#3 has been pumped continuously to establish hydraulic control of the plume, and water from MW#3 has been treated by the air-stripper to remove VOC contamination. The treated water was then provided to Bally as potable water, or discharged to an unnamed tributary of the West Branch. Between approximately 1989 and 2003, the remedy at the Site consisted of operating and maintaining the air-stripper at MW#3, and ground water monitoring.

EPA requested that the PRP evaluate the Site for the presence of 1,4-dioxane because of an Agency effort to evaluate sites which exhibit 1,1,1-trichloroethane contamination (a Bally Site contaminant) for previously unidentified 1,4-dioxane contamination. In 2003, the PRP, under EPA oversight, identified a previously unidentified hazardous substance, 1,4-dioxane, in the ground water contamination plume, in MW#3, and in the Bally public water system. Although the 1,4-dioxane concentrations identified in the Bally public water system were not considered to pose an imminent threat to human health, the Site PRP agreed to provide bottled drinking water to residents who wished to limit their exposure to 1,4-dioxane.

Since 1,4-dioxane was identified in the Bally public water system, samples of water have been collected from MW#3 and the associated air-stripper initially on a weekly basis, and later on a monthly basis. The 1,4-dioxane concentrations identified between 2003 and 2007 have ranged from approximately 24 to 77 parts per billion.

From March 2003 to September 2010, the PRP for the Site provided bottled drinking water to residents who wished to limit their exposure to 1,4-dioxane. (As noted below, an uncontaminated municipal supply well was connected to the Bally public water supply in August 2010, and MW#3 was disconnected from the public water supply.) On September 30, 2003, EPA and the PRP entered into an Administrative Order on Consent (AOC). The AOC required the PRP to, among other things, prepare a Focused Feasibility Study (FFS) to address 1,4-dioxane in the Bally public water system, and continue providing bottled water to residents.

EPA issued an Amendment to the ROD in August 2007. The 2007 ROD Amendment divided the Site into Operable Units, as follows:

OU1 – Plume of Ground Water Contamination: As stated above, the ground water contamination plume consists of ground water exhibiting Site-related contaminant concentrations (including TCE, 1,1,1-TCA, and 1,1-DCE) in excess of the ground water performance standards listed in the ROD. This ESD pertains to OU1.

OU2 - Bally public water system: The Bally public water system (OU2) provides potable water to the Borough of Bally, and certain portions of Washington Township. As indicated above, the Bally public water system exhibited concentrations of Site-related 1,4-dioxane because of ground water contamination at MW#3.

The 2007 ROD Amendment selected a remedy to address the 1,4-dioxane present in the Bally public water system (OU2). The remedy for OU2 was the installation of a new municipal supply well in an area uncontaminated by the Site. The remedy for OU2 is described in the 2007 ROD Amendment (available on-line at www.epa.gov/arweb). In accordance with the ROD Amendment, an uncontaminated municipal supply well ("Well #4") was connected to the Bally public water supply in August 2010, and MW#3 was disconnected from the public water supply.

MW#3 continues to pump, however, in order to maintain hydraulic control of the ground water contamination plume. Current discharge of the ground water from MW#3 is discharged to an unnamed tributary of the West Branch of the Perkiomen Creek, approximately adjacent to MW#3.

OU3 – Vapor Intrusion: Vapor intrusion can occur when chemicals present in contaminated soil or ground water vaporize and move upwards, potentially entering buildings, such as homes or businesses. When vapor intrusion does occur, it can pose a health concern. EPA has evaluated vapor intrusion at the former BES facility, and at homes located near the former BES facility. Based on testing results to date, additional testing and/or corrective action is not necessary for the homes sampled, however, corrective action was necessary for one tenant space within the facility. A vapor intrusion mitigation system was installed at the affected tenant space within the former BES Facility during 2009, and long-term monitoring is being performed at the facility to confirm that vapor intrusion is not occurring at levels of concern. The monitoring and vapor intrusion mitigation system installation was performed pursuant to an Administrative Order on Consent between EPA and the PRP (signed by EPA on October 16, 2008).

III. DESCRIPTION OF SIGNIFICANT DIFFERENCES

The purpose of this ESD is to select a new discharge location for the existing Site extraction well, commonly known as MW#3.

A. MW#3 Discharge Location

Page 7 of the 2007 ROD Amendment states, “MW#3 will continue to be pumped to contain the existing ground water contamination plume, but will be disconnected from the Bally public water system. Pumping of MW#3 will continue so that hydraulic control of the ground water contamination plume can be maintained and remediation of the plume will continue. Water from MW#3 will be discharged to surface water and will be required to meet National Pollutant Discharge Elimination System (NPDES) requirements. The discharge location for MW#3 is not being selected as part of this Amendment. Discharge locations are being evaluated by EPA and will be documented in an appropriate EPA decision document.”

As stated in the 2007 ROD Amendment, continued pumping of MW#3 will still be necessary after installation of the new municipal supply well has been completed. MW#3 is part of the ground water extraction system, which is necessary to protect downgradient private wells that exist outside of the Borough of Bally, and the new municipal supply well (“MW#4”) that was constructed for the Bally public water supply system. The air-stripper water treatment system present at MW#3 will continue to remove VOCs from pumped ground water prior to the discharge of the extracted water.

EPA has evaluated two locations for the discharge of the extracted water from MW#3. The first potential discharge point is the current discharge location, an unnamed tributary of the West Branch, which runs from north to south approximately 50 feet to the west of MW#3. Water currently pumped from MW#3 is treated and then discharged to the unnamed tributary by a buried pipe. The second potential location for the discharge point is the West Branch itself, which lies approximately one-mile to the west of MW#3 (see Figure 1).

In evaluating discharge locations, EPA has reviewed a NPDES permit (NPDES Permit No. PA 0055123) that Sunbeam Products, Inc. (Sunbeam, Site PRP) received from PADEP on January 24, 2005. The NPDES permit provides effluent limitations (allowable surface water discharge concentration limits for Site-related hazardous substances in the water extracted from MW#3) for several Site-related hazardous substances, including 1,4-dioxane. The effluent limitations for the two potential discharge locations are listed in the NPDES permit, as follows:

Unnamed Tributary of the West Branch NPDES effluent limitations			
Site-related hazardous substance	Effluent Limit (parts per billion) - Average Monthly	Effluent Limit (parts per billion) - Maximum Daily	Effluent Limit (parts per billion) - Instantaneous Maximum
1,1,1-trichloroethane	Monitor and report	Monitor and report	Not included in permit
Trichloroethylene	3	6	7
Tetrachloroethylene	0.7	1.4	1.7
1,4-dioxane	5	10	13
chloroform	2	4	5

West Branch NPDES effluent limitations			
Site-related hazardous substance	Effluent Limit (parts per billion) - Average Monthly	Effluent Limit (parts per billion) - Maximum Daily	Effluent Limit (parts per billion) - Instantaneous Maximum
1,1,1-trichloroethane	Monitor and report	Monitor and report	Not included in permit
Trichloroethylene	101	202	252
Tetrachloroethylene	30	60	75
1,4-dioxane	112	224	280
chloroform	213	426	532

The NPDES effluent limits were generated by PADEP using the PENTOXSD for Windows PA Single Discharge Wasteload Allocation Program for Toxics ("PENTOXSD model"). The PENTOXSD model considers that greater dilution of contaminants occurs in larger surface water bodies, which accounts for the higher NPDES effluent limits at the West Branch, relative to the unnamed tributary of the West Branch.

EPA has evaluated the effluent limits included in the NPDES permit for each of the potential discharge locations, and considers the effluent limits at both locations to be protective of human health and the environment.

To evaluate the feasibility of meeting the NPDES effluent limitations at the two potential discharge points, EPA has considered two groups of hazardous substances present in ground water at the Site: VOCs, and 1,4-dioxane.

Volatile Organic Compounds

The following hazardous substances are monitored in the effluent from MW#3 on a monthly schedule: 1,1,1-TCA, TCE, and tetrachloroethylene. Review of monthly Discharge Monitoring Reports, provided to PADEP by the PRP, reveals that the existing air-stripper present at MW#3 sufficiently removes these VOCs from MW#3 water so that the water complies with the VOC effluent limitations at either potential discharge location. The only hazardous substance which is routinely monitored for in untreated MW#3 water (pre-air-stripper) is TCE. Review of the PRP Monthly Progress Report for July 2007 (dated August 15, 2007) reveals that the TCE concentration present in MW#3 water before air stripper treatment was 488 parts per billion. Therefore, because the TCE present in MW#3 water exceeds the effluent limitations at both potential discharge locations (see above tables), continued air-stripper treatment of MW#3 water will be necessary to meet NPDES effluent limitations at either discharge location.

1,4-dioxane

As indicated in the 2007 ROD Amendment, the maximum concentration of 1,4-dioxane detected in treated water from MW#3 is 77 parts per billion (ppb). Therefore, a comparison of this maximum 1,4-dioxane concentration (77 ppb) to the NPDES 1,4-dioxane effluent limits indicates that continued discharge at the current discharge location (unnamed tributary of the West Branch) would require additional treatment for 1,4-dioxane in order to meet the NPDES effluent limit. Whereas discharge directly to the West Branch (via a constructed discharge pipeline) would meet the NPDES effluent limit without additional treatment.

As mentioned above, the PRP prepared a FFS to evaluate options to reduce 1,4-dioxane concentrations in the Bally public water system. The FFS also included a discussion of discharge options for MW#3. The FFS indicates that the costs to meet the different NPDES effluent limits for 1,4-dioxane are disparate. The FFS indicates that construction of a discharge pipeline to convey pumped water (containing 1,4-dioxane) to the West Branch (WBPC) without additional treatment would cost approximately \$600,000. In addition, the FFS indicates that the construction of a water treatment system (the FFS evaluated ultra-violet light/hydrogen peroxide treatment) for 1,4-dioxane at MW#3, which would be necessary to meet the 1,4-dioxane NPDES effluent limit at the current discharge location (the unnamed tributary), would cost approximately \$5,561,000.

During the review of the draft FFS, EPA evaluated the two discharge locations using the nine criteria included in the NCP (Section 300.430). The differences in the two discharge locations were chiefly manifested in two evaluation criteria: 1) Reduction of toxicity, mobility, or volume through treatment (NCP, Section 300.430(e)(9)(iii)(D); and 2) Cost (NCP, Section 300.430(e)(9)(iii)(G)). Based on EPA's analysis of discharge options for MW#3, each option

(construction of a pipeline and discharge to the West Branch without further treatment, and construction of a treatment system and discharge at the current location) has advantages and disadvantages. Installation of a treatment system at MW#3 and continued discharge to the unnamed tributary of the West Branch is expensive (greater than \$5,000,000), but the 1,4-dioxane would be treated to very low levels before discharge to surface water. The treatment technology for 1,4-dioxane evaluated in the FFS was ultraviolet/hydrogen peroxide oxidation. Construction of a pipeline would be less expensive (approximately \$600,000), but the 1,4-dioxane present in pumped water from MW#3 would be discharged to surface water without concentration reduction. The evaluation of discharge options for MW#3 is further complicated by two concerns, raised in the FFS, with respect to additional treatment of 1,4-dioxane: 1) based on the results of the FFS, the consistent reduction of 1,4-dioxane to a Site-specific human health-based drinking water level (3 parts per billion was evaluated as the target level during the FFS) may not be feasible; and 2) bench-scale testing of 1,4-dioxane treatment technologies, performed during the FFS, revealed the creation of potentially harmful treatment byproducts, specifically bromate and formaldehyde.

In order to confirm that the construction of a discharge pipeline to the West Branch was cost effective, while meeting the NPDES 1,4-dioxane effluent limits, EPA requested (letter dated November 13, 2006, and email dated January 22, 2007) that Sunbeam evaluate two additional 1,4-dioxane treatment technologies (hydrogen peroxide/ozone destruction; and photocatalysis) as part of the FFS. Sunbeam declined to evaluate these additional treatment technologies. EPA's requests and Sunbeam's responses have been included in the Administrative Record for the Site.

As a result, EPA performed a cost evaluation of the two additional treatment technologies. Based on EPA's evaluation, the costs of meeting the NPDES effluent limitation at the current discharge location (using the technologies evaluated by EPA) are:

<u>Treatment Technology</u>	<u>Cost*</u>
hydrogen peroxide/ozone destruction	\$5,071,086
photocatalysis	\$3,868,287

*NOTE: These costs were present value costs, based on a 30-year operation and maintenance term, and a 3.4% discount rate.

Therefore, based on the above-listed information, EPA has determined that the discharge point for MW#3 should be changed from the current discharge location (unnamed tributary of the West Branch), to the West Branch itself. The new discharge location (West Branch) will meet NPDES requirements, will be protective of human health and the environment, and is cost effective.

This change in MW#3 discharge location will require the installation of a discharge pipeline, to convey the water from MW#3 to a discharge location at the West Branch. The approximate discharge location is depicted on Figure 1 (attached). Construction of this pipeline will be completed in accordance with local, State, and Federal requirements. The EPA Region III Biological Technical Assistance Group will perform oversight of the pipeline design and construction to confirm that installation of the pipeline does not adversely impact sensitive

habitats, such as wetland areas. This ESD No. 2 significantly changes, but does not fundamentally alter, the remedy selected in the ROD with respect to scope, performance, or cost.

Environmental monitoring will be performed in the West Branch before the installation of the pipeline and after construction is completed. The monitoring will be performed to confirm that the discharge does not adversely impact the ecological habitat of the West Branch.

The Applicable or Relevant and Appropriate Requirements (ARARs) pertaining to the response actions described in this ESD which are performed on-Site are:

ARAR	Classification	Description	Further Detail Regarding ARAR in the context of the ESD
Clean Water Act, 33 U.S.C. § 1344 and regulations at 40 C.F.R. Part 230	Applicable	Sets forth federal requirements for permitting of activities in wetlands. No discharge of dredge or fill material shall be permitted if there is a practicable alternative with less adverse impact. Other requirements include minimization of impacts and compensatory mitigation.	The substantive standards of the permitting requirements are applicable to on-site pipeline construction affecting wetlands. No permit shall be required, but any applicable substantive standards shall be met.
25 Pa. Code, Chapter 105, Sections 105.17, 105.18a, 105.20, 105.451	Applicable	Sets forth state requirements for permitting of activities in wetlands. Requirements include no significant adverse impact on wetlands, no practicable alternative with less adverse impact, and replacement of affected wetlands.	The substantive standards of the permitting requirements are applicable to on-site pipeline construction affecting wetlands. No permit shall be required, but any applicable substantive standards shall be met.
25 Pa. Code Chapter 102, Sections 102.4, 102.11, 102.22	Applicable	Requires preparation of an erosion and sediment control plan for activities involving land clearing, grading, and other earth disturbances and establishes erosion and sediment control criteria.	No permit will be required, but any applicable substantive standards shall be met. An erosion and sediment control plan will be included in the work plan that will be prepared by the PRP to perform the work outlined in this ESD. The work plan will be subject to review and approval by EPA.
Endangered Species Act, 16 U.S.C. § 1536, and regulations at 50 C.F.R. Part 402	Applicable	Protection of endangered species.	Substantive standards may be applicable to on-Site pipeline construction.
National Historic Preservation Act, 16 U.S.C. § 470f and § 470h-2(f), and regulations at 36 C.F.R. Part 800	Applicable	Historic preservation	Substantive standards may be applicable to on-Site pipeline construction.

For the off-site portion of the response activities, the activities will comply with all applicable Federal, State, and local laws.

Operations and maintenance (O&M) of the discharge pipeline shall be added to the O&M manual for the air-stripper treatment system at MW#3.

IV. PUBLIC PARTICIPATION

EPA issued a notice in The Boyertown Area Times on May 27, 2010 informing the public that a draft ESD was being released for public comment and that public comment would be received between June 1, 2010 and June 30, 2010. On June 22, 2010, EPA held a public availability session in Bally to discuss progress of the new municipal supply well remedial action (OU-2), and also accepted comments on ESD No. 2 (then in draft form). During that meeting EPA announced that the public comment period would be extended to July 1, 2010. EPA received comments on the draft ESD No. 2, and prepared a Responsiveness Summary for comments received. The Responsiveness Summary which has been prepared to address public comment is also included in the Administrative Record for OU-1.

This ESD is based on the Administrative Record for the Site. This ESD and the information upon which it is based will be included in the Administrative Record, as required by NCP § 300.825 (a) (2). The Administrative Record is available for public review at the locations listed below:

USEPA, Region III – 6th Floor Docket Room
1650 Arch Street
Philadelphia, PA 19103
Please call Paul Van Reed at (215) 814-3157 to schedule an appointment.

The Administrative Record is also available on-line at:

<http://www.epa.gov/arweb>
Search “PA”, and Search “Bally Ground Water Contamination”

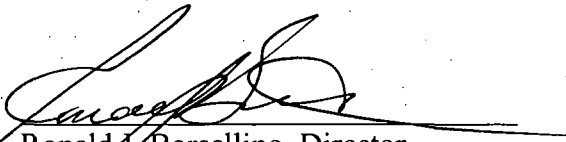
V. SUPPORT AGENCY REVIEW

The ESD has been coordinated with PADEP pursuant to 40 CFR 300.435(c)(2). PADEP's concurrence letter with ESD No. 2 is dated March 3, 2011, and is included as an attachment to the ESD.

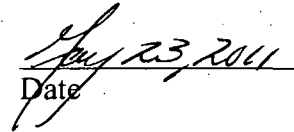
VI. AFFIRMATION OF STATUTORY DETERMINATIONS

Considering the new information that has been developed and the changes that have been made to the selected remedy, EPA believes that the remedy, as modified by ESD No. 2, would remain protective of human health and the environment, would comply with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and would be

cost-effective. In addition, the revised remedy will utilize permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable for the Site.



Ronald J. Borsellino, Director
Hazardous Site Cleanup Division
EPA Region III


Date



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION
REGIONAL DIRECTOR

March 3, 2011

Mr. Ronald Borsellino
Director
Hazardous Sites Cleanup Division
US EPA, Region III 3HS00
1650 Arch Street
Philadelphia, PA 19103-2029

Re: Explanation of Significant Differences
Bally Groundwater Site
Bally Townships, Berks County

Dear Mr. Borsellino:

The Department of Environmental Protection (Department) has reviewed the Explanation of Significant Differences #2 (ESD) for the Bally Groundwater Contamination Superfund Site (Site), received February 2, 2011. This ESD will modify the selected remedy for Operable Unit One of the Record of Decision issued on June 30, 1989.

The ESD changes the discharge location for the treated water from pumping Municipal Well Number Three (MW#3), a Site ground extraction well, and includes the following:

- The discharge location for the treated water from MW#3 changes from the from an unnamed tributary of the West branch of the Perkiomen Creek to the West branch of the Perkiomen Creek
- Pumping of MW #3 will continue so that hydraulic control of the ground water contamination plume can be maintained and remediation of the plume will continue.
- Water from MW #3 will be discharged to surface water and will be required to meet National Pollutant Discharge Elimination System (NPDES) # PA 0055123.
- The off-site portion of the response activities will comply with all applicable local, State, and Federal requirements.
- Environmental monitoring will be conducted in the West Branch before installation of the pipeline and after construction to confirm that the discharge does not adversely impact the ecological habitat of the West Branch.

Mr. Ronald Borsellino

- 2 -

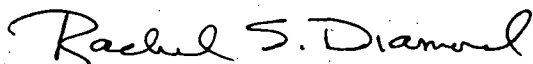
March 3, 2011

The Department of Environmental Protection hereby concurs with the proposed remedy with the following conditions:

- The Department will be given the opportunity to review and comment on documents and concur with decisions related to the design and implementation of the remedial action, to assure compliance with Pennsylvania ARARs.
- This concurrence with the selected remedial action is not intended to provide any assurances pursuant to CERCLA § 9604(c)(3).

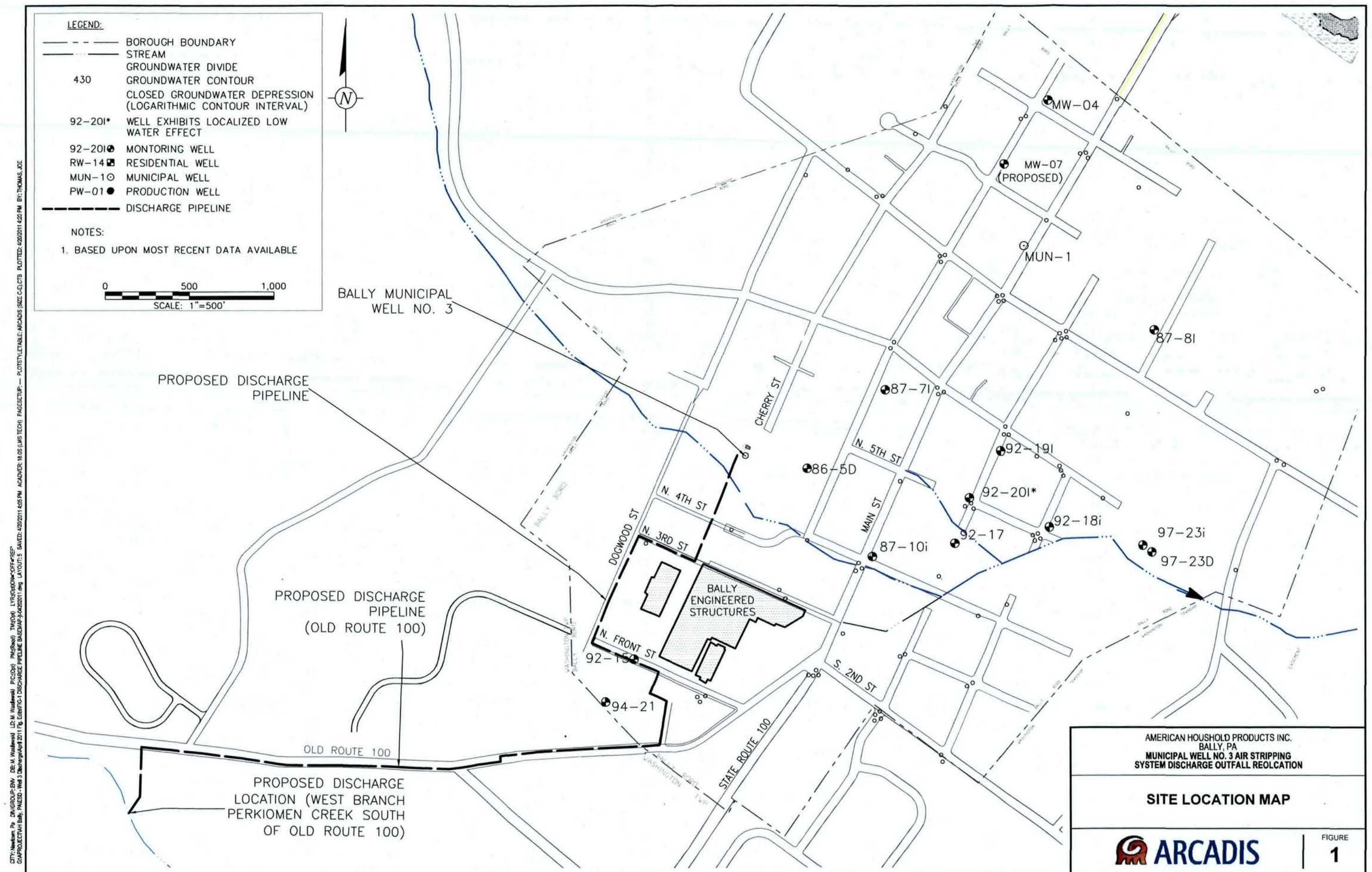
Thank you for the opportunity to comment on this ESD. If you have any questions regarding this matter, please contact Mr. Arthur Dalla-Piazza at 717-705-4861.

Sincerely,



Rachel S. Diamond
Regional Director

cc: Mitch Cron, EPA (email)



R6-035	5/13/88*	6/88*	1/31/89	3/1/89	3/14/89	4/5/89	5/5/89	6/2/89	7/6/89	1/14/93	5/10/93	3/25/03
4,4-Dioxane												14
Dichloroethene, 1,1-	170	280	340	230	75	140	110	<50	<50	5.9	4.4	21
Trichloroethene	4	N0	<10	<50	<50	<50	3	<50	<50	58	37	85
Trichloroethene	N0	N0	<10	<50	<50	<50	<1	<50	<50	1.6	1	1.4
Tetrachloroethene, 1,1,1,1-	1300	1000	2100	850	250	580	430	230	150	5.3	3.1	1.2

92-20	6/7/99	1/10/00	7/24/00	1/24/01	8/6/01	1/21/02	7/8/02	9/12/02	2/27/03	10/14/03	3/16/04	10/7/04	3/28/05	9/20/05	3/7/06	9/14/06	3/9/07	10/3/07	3/31/08	9/24/08	3/19/09	9/29/09
1.1-Dicloroethene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1.1-Dichloroethene	8.0	11	8.0	8.0	7.47	--	49.1	16.9	2.5	6.0	10	6.3	4.6	5.6	<1	<2.8	<2.8	<2.8	<2.8	<1.9	<2.9	<2.9
Trichloroethene	10	15	11	8.0	11.2	8.05	35.9	40.8	6.2	9.3	14	8.3	6.4	9.2	7.6	4.3	6.4	5.5	5.8	8.4	3.6	5.3
Tetrachloroethene	<1	<1	<1	<1	--	--	<1	--	<1	<0.60	<1	<1	<1	<1	<1	<1.0	<1	<1	<1	<1	<1.0	<1.0
1.1.1-Trichloroethane	<1	<1	4.0	5.0	<5	<2	19.2	8.51	2.0	4.1	4.8	4.5	3.6	4.0	3.5	1.6	2.7	2.8	2.3	3.2	<1	<1.8

Municipal Well No.	1/1/82*	7/5/83	9/15/83	11/27/84	3/26/85	8/27/85	5/12/86*	1/9/88	1/19/93	5/1/93	12/28/93	2/1/03	3/6/03	5/6/03
14-Davine	--	--	--	--	--	--	--	--	--	--	--	<10	<0.5	0.5
Dichloroethene, 1,1-	--	--	--	1.6	3.9	3.82	5	19	2.2	<1	--	--	<1	<0.5
Trichloroethene	ND	2.59	5	3.7	6.8	148	10	15	1.3	1.6	1.47	0.35	0.3	0.4
Tetrachloroethene	--	0.1	--	--	--	--	ND	--	<1	--	--	<1	<0.2	0.2
Trichloroethene, 1,1,1-	ND	1.85	--	19.5	46.6	46.29	46	73	5.3	4.7	4.17	0.37	0.6	0.6

92-191	1/10/00	1/24/01	1/21/02	2/27/03	3/16/04	3/28/05	3/8/06	3/30/07	4/1/08	3/20/09
1,4-Dioxane	--	--	--	<10	<10	<2.8	<2.8	<3.0	<2.8	<2.8
1,1-Dichloroethene	3.0	4.0	2.98	2.6	4.2	2.0	2.2	1.6	2.2	2.4
Trichloroethene	7.0	5.0	5.6	4.6	4.3	2.3	3.4	1.9	2.3	2.6
Tetrachloroethene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	6.0	3.0	3.97	2.6	3.3	1.6	2.0	0.98	1.9	1.2

87-Bi*	10/7/0
1,4-Dioxane	<1
1,1-Dichloroethene	<1
Trichloroethene	<1
Tetrachloroethene	<1
1,1,1-Trichloroethane	<1

86-03D	5/12/86 ^a	1/9/88 ^a	1/31/89	3/1/89	3/14/89	4/5/89	5/5/89	6/2/89	7/6/89	1/14/93	5/10/93
1,4-Dioxane ²											
Trichloroethene, 1,1,-	130	180	99	450	340	310	720	250	250	250	360
Trichloroethane	90	ND	<1	92	82	36	840	<50	46	2600	3800
Trichloroethene, trans	ND	ND	<1	<1	1	<10	<25	<50	<50	31	<100
Trichloroethane, 1,1,1,-	210	180	83	1000	510	670	1900	390	670	67	110

92-15	2/25/93	5/13/93	2/2/95	3/25/01
1,4-Dioxane	--	--	--	<0.7
1,1-Dichloroethene	11	4.9	4.7	1.8
Trichloroethene	22	13	14	4.3
Tetrachloroethene	<1	<1	<1	<0.2
1,1,1-Trichloroethane	34	20	17	3.4

94-21	2005*
TVOC	<1

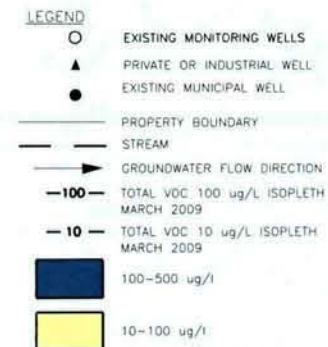
56-041	1/9/89	1/31/89	3/1/89	3/14/89	4/5/89	5/5/89	6/2/89	7/6/89	2/25/93	5/12/93	3/25/03
1,4-Dioxane	--	--	--	--	--	--	--	--	--	--	7.4
Chloroethene, 1,1-	230	83	120	110	110	660	560	<200	<60	48	2.7
Trichloroethene	3100	1860	1300	1100	1300	5800	5400	<200	570	880	2.4
Tetrachloroethene	--	<10	<25	<25	<25	<50	<50	<200	<100	11	0.4
Trichloroethane, 1,1,1-	470	<10	<25	40	83	1200	400	<200	<100	45	1

[illegible]

92-101	6/7/99	1/10/00	7/24/00	1/24/01	8/9/01	1/21/02	7/9/02	9/12/02	2/27/03	3/25/03	10/14/03	3/16/04	10/7/04	3/29/05	9/21/05	9/21/05	8/7/06	5/6/06	9/14/2009	3/20/10	4/7/10	9/24/10	3/23/10	9/29/10
4-Isoprene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	18	25	14	15	8.66	16.7	65.5	20.6	8.2	12	12	13	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Trichloroethene	26	37	26	25	15.6	19	38.8	38.6	19	21	17	22	19	19	18	18	16	17	14	6.3	5.7	7.4	9.8	11
Tetrachloroethene	<1	<1	<1	<1	--	<1	1.24	<1	<1	<2	<0.60	<1	0.27	<1	0.96	1	1.20	0.88	<1	<1.0	<1	<1	<1	<1
1,1,1-Trichloroethene	12	16	8.0	9.0	<5	10.6	22.9	9.77	4.5	6.1	5.1	5.6	<5	5.2	4.5	6.6	5.9	3.8	4.5	4.4	3.8	3.9	3.4	2.7

92-04D	1/28/93	2/26/93	5/13/93	2/2/95	3/25/95	3/25/95	92-17
1,4-Dioxane	--	--	--	--	<0.4	<0.4	1,4-Dioxane
Dichloroethane, 1,1-	67	16	0.8	<5	1.2	1.2	1,1-Dichloroethane
Trichloroethane	500	170	60	44	12	9.2	Trichloroethane
Tetrachloroethane	<10	<1	<1	<5	<0.2	<0.2	Tetrachloroethane
Trichloroethane, 1,1,1-	87	22	12	5.6	1.8	<0.3	1,1,1-Trichloroethane

92-17	6/1/99	1/10/00	7/24/00	1/24/01	8/6/01	1/21/02	7/9/02	9/12/02	2/26/03	3/25/03	5/25/03	10/14/03	3/16/04	10/6/04	3/26/05	9/20/05	3/7/06	9/14/06	3/28/07	10/3/07	3/31/08	9/24/08	3/18/09	9/23/09
4-Dioxane																								
1,1-Dichloroethene	10	40	6.0	14	20	5.91	188	—	<10	1.4	<0.4	<5	1.6	<5	<2.8	<2.8	<2.8	<2.8	<2.8	3.9	<6.8	<7.9	<3.0	2.9
Trichloroethene	14	50	7.0	21	34.8	8.75	60	60.6	9.7	0.4	1	4.8	3.0	3.9	3.1	8.5	2.6	2.1	19	5.4	17.5	4.7	1.2	3.3
Tetrachloroethene	<1	<1	<1	—	<1	1.35	<1	<1	<0.2	<0.6	<0.1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1.0
1,1,1-Trichloroethene	7.0	24	2.0	8.0	<5	4.27	32	10.8	1.2	<0.3	0.72	5.8	0.59	1	0.45	1.5	<1	<1	3.8	3.3	1.3	1.3	<1	0.55



WELL ID: B7-BI

SAMPLE DATE: 10/7/2004

EPA MCL STANDARDS (ug/L)	
1,4 Dioxane	3*
1,1-Dichloroethene	7
Trichloroethene	5
Tetrachloroethene	5
1,1,1-Trichloroethane	200

* NO MCL EXISTS PRESENTLY FOR 1,4-DIOXANE, 3 PPB IS POTENTIAL STANDARD FOR THIS SITE

ESTIMATED VALUE

CONCENTRATION (MICROGRAMS PER LITER (ug/L))

NOTES:

1. ALL CONCENTRATIONS IN ug/L
2. ISOPLETHS BASED ON DATA COLLECTED DURING THE GROUNDWATER SAMPLING EVENT CONDUCTED IN MARCH 2009
3. NO DETECTION LIMIT AVAILABLE FOR 1988 DATA FOR WELL 87-71.
4. WELL 87-81 WAS SAMPLED DURING THE OCTOBER 2004 EVENT TO REEVALUATE THE NORTHEASTERN LIMIT OF THE PLUME
5. METHYLCHLORIDE WHICH IS LISTED AS AN INDICATOR IN THE 1989 ROD HAS NOT BEEN RECENTLY DETECTED IN ANY SAMPLE FOR WHICH AN ASSOCIATED QA/QC SAMPLE DID NOT HAVE A SIMILAR DETECTION.

A horizontal scale bar with alternating black and white segments. It is marked with '0' at the left end, '500' in the middle, and '1,000' at the right end. Below the bar, the text 'SCALE IN FEET' is centered.

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BALLY GROUNDWATER SITE

GROUNDWATER SAMPLING RESULTS 1988 TO 2009

BALLY, PA

Project Number	
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NP000597.002

Date
9 JANUARY 2007

Figure 2